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IN THE CLAIMS:

Please cancel claims 1-10.

Please add new claims 11-31 as follows:

1-10. (Canceled)

11. (New) A power factor correction device for switching power supplies, said power factor correction device comprising:

a converter including a power transistor and an output terminal; and

a control device coupled to the converter so as to obtain, from an alternating voltage, a direct regulated voltage at the output terminal of the converter,

wherein the control device includes:

an error amplifier receiving at an inverting terminal a first signal that is proportional to the regulated voltage, and receiving at a non-inverting terminal a reference voltage;

at least one capacitor having a first terminal coupled to the inverting terminal of the error amplifier, and a second terminal coupled to an output terminal of the error amplifier;

a driving circuit for driving the power transistor of the converter, the driving circuit being coupled to the second terminal of the capacitor;

an interruption circuit coupled between the output terminal of the error amplifier and the second terminal of the capacitor; and

a control circuit for activating the interruption circuit so as to interrupt the connection between the error amplifier and the driving circuit for at least one time period, which is shorter than a time period in which the control device is operative.

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12. (New) The power factor correction device according to claim 11, wherein the control device further includes a comparison circuit for comparing the first signal with a reference signal, the comparison circuit outputting a second signal for deactivating the power transistor and the control device when the connection between the error amplifier and the driving circuit is interrupted and when a value of the first signal is lower than a value of the reference signal.

13. (New) The power factor correction device according to claim 12, wherein the control circuit, the interruption circuit, and the comparison circuit are integrated in the same chip as the control device.

14. (New) The power factor correction device according to claim 11, wherein the at least one time period consists of a fixed duration time period for each operation cycle of the control device.

15. (New) The power factor correction device according to claim 11, wherein the converter further includes a diode rectifier circuit, and the driving circuit of the control device includes:

a multiplier coupled to the error amplifier, the multiplier multiplying an output signal of the error amplifier and the capacitor with a second signal that is proportional to an output signal of the diode rectifier circuit; and

a comparator for comparing an output signal of the multiplier with a third signal that is proportional to the current flowing in the power transistor, the control circuit being coupled to the output of the comparator and being activated when a value of the output signal of the multiplier is equal to a value of the third signal.

16. (New) The power factor correction device according to claim 15, wherein the at least one time period consists of a fixed duration time period for each operation cycle of the control device.

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17. (New) The power factor correction device according to claim 15, wherein the control circuit includes a monostable multivibrator that, when activated, outputs a pulse signal to activate the interruption circuit.

18. (New) The power factor correction device according to claim 17, wherein the control device further includes a sampling circuit coupled to the multiplier, the second terminal of the capacitor, and the output of the comparator, the sampling circuit storing a value of the output signal of the error amplifier and the capacitor when the control circuit is activated.

19. (New) The power factor correction device according to claim 18, wherein the control device further includes:

a comparison circuit for comparing the first signal with a reference signal, the comparison circuit outputting a fifth signal;

an AND gate receiving an output signal of the monostable multivibrator and the fifth signal; and

a set-reset flip-flop receiving, at a set input, an output signal of the AND gate, the set-reset flip-flop producing an output signal that deactivates the power transistor and the control device when the connection between the error amplifier and the driving circuit is interrupted and when a value of the first signal is lower than a value of the reference signal.

20. (New) The power factor correction device according to claim 11, wherein the at least one time period is a fixed duration time period that occurs when the value of the output signal of the error amplifier and the capacitor is higher than a threshold value.

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21. (New) The power factor correction device according to claim 11, wherein the converter further includes an input stage comprising a diode rectifier circuit, the driving circuit of the control device includes:
- a multiplier coupled to the error amplifier, the multiplier multiplying an output signal of the error amplifier and the capacitor with a second signal that is proportional to an output signal of the diode rectifier circuit; and
 - a comparator for comparing an output signal of the multiplier with a third signal that is proportional to the current flowing in the power transistor, and
- the control circuit includes:
- a monostable multivibrator that is coupled to the output of the comparator and is activated when a value of the output signal of the multiplier is equal to a value of the third signal; and
 - a detecting circuit for detecting a value of the current flowing through the capacitor, comparing that value with a reference current, and outputting a fourth signal when the current flowing through the capacitor is higher than the reference current, the fourth signal causing activation of the interruption circuit when the monostable multivibrator is activated.
22. (New) The power factor correction device according to claim 21, wherein the at least one time period is a fixed duration time period that occurs when the value of the output signal of the error amplifier and the capacitor is higher than a threshold value.

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23. (New) The power factor correction device according to claim 21, wherein the control device further includes:

a comparison circuit for comparing the first signal with a reference signal, the comparison circuit outputting a fifth signal;

an AND gate receiving an output signal of the monostable multivibrator and the fifth signal; and

a set-reset flip-flop receiving, at a set input, an output signal of the AND gate, the set-reset flip-flop producing an output signal that deactivates the power transistor and the control device when the connection between the error amplifier and the driving circuit is interrupted and when a value of the first signal is lower than a value of the reference signal.

24. (New) The power factor correction device according to claim 23, wherein the control circuit, the interruption circuit, and the comparison circuit are integrated in the same chip as the control device.

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25. (New) A switching power supply comprising a power factor correction device and a DC-DC converter coupled to an output of the power factor correction device, wherein the power factor correction device includes:

- a boost converter including a power transistor and an output terminal; and
- a control device coupled to the boost converter so as to obtain, from an alternating voltage, a direct regulated voltage at the output terminal of the boost converter,

wherein the control device includes:

- an error amplifier receiving at an inverting terminal a first signal that is proportional to the regulated voltage, and receiving at a non-inverting terminal a reference voltage;

- at least one capacitor having a first terminal coupled to the inverting terminal of the error amplifier, and a second terminal coupled to an output terminal of the error amplifier;

- a driving circuit for driving the power transistor of the boost converter, the driving circuit being coupled to the second terminal of the capacitor;

- an interruption circuit coupled between the output terminal of the error amplifier and the second terminal of the capacitor; and

- a control circuit for activating the interruption circuit so as to interrupt the connection between the error amplifier and the driving circuit for at least one time period, which is shorter than a time period in which the control device is operative.

26. (New) The switching power supply according to claim 25, wherein the control device of the power factor correction device further includes a comparison circuit for comparing the first signal with a reference signal, the comparison circuit outputting a second signal for deactivating the power transistor and the control device when the connection between the error amplifier and the driving circuit is interrupted and when a value of the first signal is lower than a value of the reference signal.

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27. (New) The switching power supply according to claim 25, wherein the at least one time period consists of a fixed duration time period for each operation cycle of the control device.
28. (New) The switching power supply according to claim 25,
wherein the boost converter the power factor correction device further includes a diode rectifier circuit, and
the driving circuit of the control device of the power factor correction device includes:
a multiplier coupled to the error amplifier, the multiplier multiplying an output signal of the error amplifier and the capacitor with a second signal that is proportional to an output signal of the diode rectifier circuit; and
a comparator for comparing an output signal of the multiplier with a third signal that is proportional to the current flowing in the power transistor, the control circuit being coupled to the output of the comparator and being activated when a value of the output signal of the multiplier is equal to a value of the third signal.
29. (New) The switching power supply according to claim 28, wherein the control circuit of the control device of the power factor correction device includes a monostable multivibrator that, when activated, outputs a pulse signal to activate the interruption circuit.
30. (New) The switching power supply according to claim 25, wherein the at least one time period is a fixed duration time period that occurs when the value of the output signal of the error amplifier and the capacitor is higher than a threshold value.

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31. (New) The switching power supply according to claim 25,

wherein the boost converter of the power factor correction device further includes an input stage comprising a diode rectifier circuit,

the driving circuit of the control device of the power factor correction device includes:

a multiplier coupled to the error amplifier, the multiplier multiplying an output signal of the error amplifier and the capacitor with a second signal that is proportional to an output signal of the diode rectifier circuit; and

a comparator for comparing an output signal of the multiplier with a third signal that is proportional to the current flowing in the power transistor, and

the control circuit of the control device of the power factor correction device includes:

a monostable multivibrator that is coupled to the output of the comparator and is activated when a value of the output signal of the multiplier is equal to a value of the third signal; and

a detecting circuit for detecting a value of the current flowing through the capacitor, comparing that value with a reference current, and outputting a fourth signal when the current flowing through the capacitor is higher than the reference current, the fourth signal causing activation of the interruption circuit when the monostable multivibrator is activated.